

## **REMARKS/ARGUMENTS**

Reconsideration of this application is awaited. Claims 18-34 are in the case.

### **I. THE INTERVIEWS**

At the outset, the undersigned wishes to thank the Examiner (Ms. Kim) for conducting interviews in this case. The first was a personal interview held on May 27, 2010, and this was followed by a telephone interview on May 28, 2010. During the first interview, the outstanding enablement and obviousness rejections were discussed and a draft Rule 132 declaration was presented for discussion. The telephone interview on May 28, 2010 discussed the issue of whether the enablement rejection as it relates to prevention of vaginal fungal infection would be obviated if the language "prevention and treatment" was employed. Agreement was reached that deletion of reference to prevention would overcome the lack of enablement rejection. No agreement was reached with regard to prevention.

### **II. THE 35 U.S.C. §112, FIRST PARAGRAPH, REJECTION**

Claims 18-34 stand rejected under 35 U.S.C. §112, first paragraph, on the ground that the specification, while enabling for the "treatment of vaginal fungal infections", allegedly does not reasonably provide enablement for the "prevention" of vaginal fungal infections. The rejection is respectfully traversed.

In light of the outcome of the interviews, and in order to advance prosecution, the claims have amended to remove reference to prevention. This amendment is made

without prejudice to pursuing the prevention aspect of the invention in a continuing application. Withdrawal of the lack of enablement rejection is respectfully requested.

### **III. THE OBVIOUSNESS REJECTION**

Claims 18-34 stand rejected under 35 U.S.C. §103(a) as allegedly unpatentable over Kerr (1999 ISSN 0891-060X) in view of Hotzel *et al.* (U.S. Patent No. 5,371,107) (Hotzel). The rejection is respectfully traversed.

As claimed, the invention provides a method for the treatment of a vaginal fungal infection. The method comprises administering a formulation comprising ascorbic acid or a physiologically acceptable salt thereof to a patient in need of such prevention or treatment. The formulation is administered after completion of a standard treatment of the patient for bacterial, fungal or protozoarian infections.

The present invention is based on the discovery that ascorbic acid creates an unfavorable environment for the germination of new vegetative forms from fungal spores after a standard treatment against bacterial, fungal or protozoarian infections (specification, page 6). As discussed below, this concept is not suggested by Kerr or Hotzel, taken singly or in combination.

The Action asserts:

"With regard to 35 U.S.C. 103 rejection, Applicant argues that the present invention is based on the discovery that ascorbic acid creates an unfavorable environment to the germination of fungal spores after a standard treatment against bacterial, fungal or protozoarian infections which is not suggested by Zeng or Hotzel. This is not persuasive because the mechanism of action of ascorbic acid creates an unfavorable environment to the germination of fungal spores by which the active ingredient gives the pharmacological effect does not alter the fact that the compound has been previously used to obtain the same pharmacological

effects which would result from the claimed method. That is, vitamin C is known to favor the selection and colonization of *Lactobacillus* that is known to inhibit the growth of fungi. It is also known that vitamin C helps to activate the immunodefense system as taught by Hotzel et al. An explanation of why that effect is an unfavorable environmental to the germination of fungal spores does not make unobvious the treatment of the conditions encompassed by the claims."

The Action appears to argue that:

1. it is known that *Lactobacillus* lives in acid environment;
2. it is known that *Lactobacillus* inhibits the growth of fungi;
3. it would thus be obvious to administer ascorbic acid to lower the pH and favor the growth of *Lactobacillus*, thus inhibiting growth of fungi.

This assertion of obviousness is respectfully traversed.

As of the filing date of the present invention, it was known in the art that an acid environment **favors** the growth of fungi. This is clearly disclosed by Zeng (1998) (of record) and by Vagi C (2000) (see the IDS dated July 6, 2009). In particular, as stated at page 5 of the present specification, in Vagi C the vaginal application of ascorbic acid is considered useless or potentially dangerous. Likewise, Zeng discloses treatment of fungal vaginitis with a pharmaceutical composition for **reducing** vaginal acidity and notes that raising of vaginal acidity leads to damage of the vaginal mucosa, which can result in vaginitis (Abstract; col. 2, lines 15-20; col. 3, lines 42-51; col. 6, lines 6-13, and 35-40).

Thus, at the time of filing of the present application, the person of ordinary skill would have been aware of at least two documents (Zeng and Vagi C) which advocated reducing vaginal acidity and thus led **away** from using an acid such as ascorbic acid in

relation to treatment of vaginal fungal infections. Consequently, as of the priority date of the present application, the person of ordinary skill would have had no reasonable expectation that increasing acidity (by lowering the vaginal pH) would have inhibited the growth of fungi. The discovery of the present invention is thus surprising and unexpected, based on the conventional wisdom prevailing at the time the invention was made.

Kerr discloses that normal vaginal flora consist of lactobacilli and that "Factors thought to favour development of vaginal candidiasis include....changes in vaginal pH" (page 138, left hand column). Kerr does not suggest anything in relation to ascorbic acid or the effect of increasing or decreasing acidity. Moreover, Kerr merely refers to "factors" which are "thought" to affect the development of vaginal candidiasis. Kerr is silent in regard to any specific disclosure about pH, what is meant by "changes in vaginal pH", and/or what particular pH changes would or would not be beneficial in regard to treatment or prevention of vaginal fungal infections.

However, the person of ordinary skill, aware of Zeng (of record), would have understood that "changes in vaginal pH" which would favor development of vaginal fungal candidiasis would involve **increases** in acidity, as Zeng discloses that raising of vaginal acidity leads to damage of the vaginal mucosa, which can result in vaginitis (Abstract; col. 2, lines 15-20; col. 3, lines 42-51; col. 6, lines 6-13, and 35-40). Thus, as of the filing date of the present application, the person of ordinary skill, aware of Kerr and Zeng would have been motivated, based on Zeng, to use a treatment which would **not** result in an increase in vaginal acidity in light of the risk of causing damage to the

vaginal mucosa and possibly vaginitis – i.e., not employ a treatment involving the use of an acid such as ascorbic acid.

Hotzel discloses the topical use of vitamin C (ascorbic acid) to eliminate the potential pathogenic bacteria by acidification. However, based on the skilled artisan's awareness of Zeng, the skilled artisan would not have been motivated to use an acidic treatment, and thus would not have been motivated to combine Kerr and Hotzel, since this would have resulted in an increase in acidity. Even if one of ordinary skill had contemplated combining Kerr and Hotzel (it is believed this would not have occurred for the reasons discussed above), the presently claimed method would not have resulted, or have been rendered obvious thereby because, according to the claimed method, ascorbic acid is administered to women who have already completed a standard treatment against bacterial, fungal or protozoarian infections. This specific step methodology is not suggested by the art of record.

Withdrawal of the obviousness rejection is believed to be in order. Such action is respectfully requested.

#### **IV. AMENDMENTS**

The claims have been amended to remove, without prejudice, the prevention aspect of the invention, and to improve their form. No new matter is entered.

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Favorable action is awaited.

Respectfully submitted,

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